WRIGHT-AUSTIN

SEPARATORS

STEAM · OIL · AIR · GAS

EXHAUST HEADS

CATALOG No. 500

Standard with STEAM USERS SINCE '94

Serving Industry for more than 50 Years

WRIGHT AUSTIN

WRIGHT-AUSTIN
Engineering Representatives

are located in principal cities to help you with problems concerned with the separation of moisture from steam and other fluids, and the automatic trapping of fluid lines and steam using equipment. Call on them for assistance in selecting the proper equipment for a specific installation and in obtaining maximum economy from such equipment. Call the representative nearest to you.

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INTRO

As this, our latest catalog, goes to press, the service of the Wright-Austin Company to the engineering fraternity is nearing its fifty-fourth year. This period has witnessed remarkable changes in steam generation and use and a greater utilization of control devices. It has been a period marked by the steady and persistent growth of Wright-Austin pre-eminence in the field of steam saving equipment.

Due to the fact that present-day practice involves the use of more exact separation of entrained moisture in steam, Wright-Austin Steam Specialties have come to be regarded as an essential rather than auxiliary equipment. The leading position of this company in the field of separation and control of condensate has been attained because of the sound engineering principles entering into the design and manufacture of each device originated by our engineering department.

As a result, we have sometimes been compelled to resort to extraordinary means in satisfying the demands made upon our production facilities.

We have endeavored in this catalog to provide such information on our leading specialities as will enable an engineer to select the proper device for his purpose. It is inevitable, however, that many conditions of service cannot be mentioned because of the limitations of space. It is not intended that this catalog shall serve as a substitute for the sales engineer. With the almost endless variety of conditions involved in the application of steam equipment, the printed page cannot possibly supplant the personal aid, experience and practical suggestions of our sales engineers. If there are special conditions of service upon which any reader desires counsel, our engineering department stands ready at all times to offer its help.

Many specialties made by us are not cataloged here because of the special conditions for which they are intended, yet which offer some special advantage in services similar to those for which they were originally designed.

We wish to thank our many friends throughout the world for their substantial support and shall welcome an opportunity to satisfy the requirements of those who are not now users of our products.

You may be assured that in quality of product and character of service, this company will continue to merit the worldwide confidence and esteem which has been its privilege to enjoy for more than half a century.

Modern Practice Demands Modern Equipment

Because progress in modern power plant practice is based on the endeavor to obtain greater thermal efficiency of equipment, increasing use is made of

Printed in U.S.A.

DUCTORY

high initial steam pressures and super-heat. Distribution practice keeps pace with developments in generation.

These developments have been attended by a parallel development in the improvement of devices to obtain the greatest thermal efficiency from the steam generated and in its practical use by auxiliary and related equipment.

It is our desire to keep Wright-Austin equipment abreast of any possible service requirements and to anticipate the future needs of our thousands of customers. To this end we are continually experimenting and conducting exhaustive tests so that Wright-Austin equipment may, as ever, be relied upon to provide the greatest efficiency demanded by modern engineering practice.

Modifications Are Proved Under Actual Working Conditions

Changes in construction can therefore be accepted with the assurance that any change has improved the operating efficiency of the equipment or device so altered. When customers receive equipment slightly different from the same equipment illustrated and described in these pages it will be understood that the change is due to an improvement made since the issuance of the technical description in this catalog.

Leaders Are Users

Among the users of Wright-Austin equipment are leading companies in many fields—chemical, oil, light and power, railroad, marine and many others, both here and abroad. Both our own Government and Governments in foreign lands recognize the reliability and efficiency of Wright-Austin equipment. The Coast Guard, Revenue and other branches of U. S. Government marine services, Battleships, Cruisers, Torpedo Boats, Destroyers and Submarines are equipped with Wright-Austin products. Many of the largest industrial plants, public utility steam plants and large buildings are equipped with steam specialties made by Wright-Austin. Many leading engineers, architects and contractors specify Wright-Austin in their work—which in itself is high commendation from men who know and select the best. Every piece of equipment bearing our name, when properly installed, is fully guaranteed to meet the conditions for which it is sold.

WRIGHT-AUSTIN COMPANY
Detroit, Michigan, U.S.A.

Steam Specialties for Power Plants, Heating and Processing Equipment

WRIGHT AUSTIN
DETROIT, MICHIGAN

INDEX

SPECIAL INFORMATION

TYPE "A" SEPARATORS are constructed for pressures to 250 psi and 450° F.*

1½" and 2" sizes are regularly furnished with female pipe thread connections, but are available with flanged ends at extra cost.

Unless otherwise specified, all sizes over 2" are regularly furnished with flanges, faced and drilled to 250 lb. A.S.A. Standard. When so ordered, 125 lb. A.S.A. Standard flanges can also be furnished.

Water Gauge can be furnished on all sizes at extra cost, when so ordered.

To insure accurate quotations, customers should specify pipe size, equipment on which the separator is to be used, rate of steam flow, working steam pressure in psig, and degrees of superheat. This will insure receipt of a separator having the most efficient operating characteristics for the intended use.

*Also made in Cast Steel for superheat service and pressures up to 600 lbs.

Trap To Use With This Separator

Cub Type "AIRXPEL"

Under normal conditions, this trap may be used with excellent results, on Separators up to 4". On larger Separators and under conditions producing large quantities of condensate, the Master series of "Airxpel" traps is recommended. Refer to Catalog 600.

Dimensions (in inches) and Weights

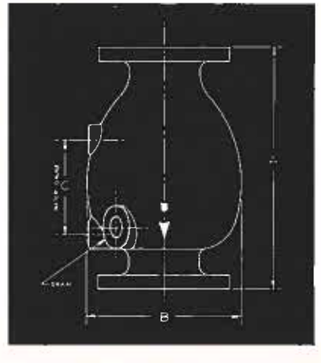
Pipe Size	A	B	C	Water Gauge Size	Drain Size	Weight Lbs.	Code Word
*1½	11	7	4 3/8	3/8	½	40	ABATE
*2	11	7	4 3/8	3/8	½	40	ABOUT
**1½	12	7	4 3/8	3/8	½	50	ABEAM
2	12	7	4 3/8	3/8	½	50	ABIDE
2½	13½	8	4 7/8	3/8	¾	67	ABOVE
3	15½	9	5 7/8	3/8	¾	96	ACTOR
4	18	11	11	3/8	¾	150	ADRIP
6	25¼	15	11¼	½	1	370	ACUTE

*Screwed Ends.
**250 Lb. Flanges only.

Sizes over 6" in welded construction only.

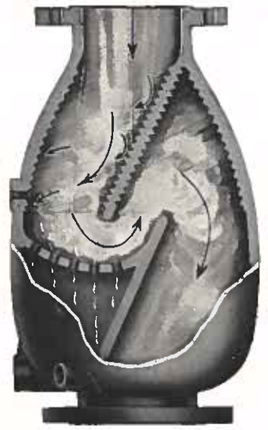
See charts page 516 & 517 for Capacity and Pressure drop

Reference Dimensions are shown in table above



VERTICAL STEAM SEPARATOR TYPE "A"

(Downflow)



General Description

● This separator depends for its high efficiency upon the unique placing of the baffle plate to capture the highest possible percentage of entrained moisture. This baffle is so placed that the incoming steam is directed along its oblique surface, interrupted by corrugations which trap the moisture and drain it into the well of the separator.

As the steam strikes the corrugations in the oblique baffle it is forced to the opposite wall of the separator, where other corrugations trap most of the remaining moisture. A quick reversal of direction tends to remove the last trace of moisture as the steam strikes other corrugations at the point of reversal.

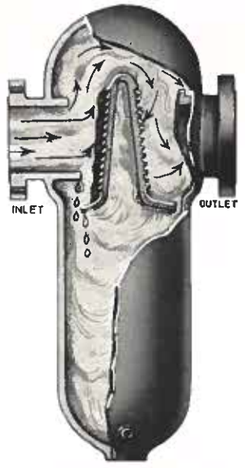
This method of separation has proved, through the years, to be the most efficient method of obtaining really dry steam.

Type "A" is especially designed for placement just above the throttle of the engine. Because of its large internal area and absence of back pressure, this separator provides a full, free flow of live, dry steam and assists in dampening pulsations. Its highest efficiency is attained and maintained at the rate of steam flow and pressure designated at the time of purchase.

WRIGHT AUSTIN
DETROIT, MICHIGAN

HORIZONTAL STEAM SEPARATOR TYPE "E"

Receiver — Separator



General Description

● This type of separator provides unusually efficient moisture separation. It is one of the most effective types manufactured—proved by the thousands in use today.

The following advantages contribute to the effectiveness of this separator:

1. To prevent separated moisture from again coming in contact with the flow of steam, there is provided an extended inlet and a protected outlet.
2. As indicated in the illustration, the steam, after striking the corrugated, oblique baffle, passes over the baffle to the outlet. In its path around the baffle, the steam is subjected to a continuous scrubbing action which completely eliminates entrained moisture without causing back pressure.
3. Because the separator is cast in one piece, there are no gaskets or joints to cause leakage and subsequent maintenance.
4. The large internal area and extra capacity of the receiver provides a reserve of steam for sudden fluctuations of load. This quality of the Type "E" also prevents the passage of slugs of water and thus offers extra protection to operating equipment.

SPECIAL INFORMATION

TYPE "E" Separators are constructed for pressures to 250 psi and 450°F.*

1½" and 2" sizes are regularly furnished with female pipe thread connections but are available with flanged ends at extra cost.

Unless otherwise specified, all sizes over 2" are regularly furnished with flanges, faced and drilled to 250 lb. A.S.A. Standard. When so ordered 125 lb. A. S. A. Standard flanges can also be furnished.

Water Gauge can be furnished on all sizes at extra cost, when so ordered.

To insure accurate quotations, customers should specify pipe size, equipment on which the separator is to be used, rate of steam flow, working steam pressure in psig, and degrees of superheat. This will insure receipt of a separator having the most efficient operating characteristics for the intended use.

*Also made in Cast Steel for superheat service and pressures up to 600 lbs.

Trap To Use With This Separator

Cub Type "AIRXPEL"

Under normal conditions, this trap may be used with excellent results, on Separators up to 4". On larger Separators and under conditions producing large quantities of condensate, the Master series of "Airxpel" traps is recommended. Refer to Catalog 600.

Dimensions (in inches) and Weights

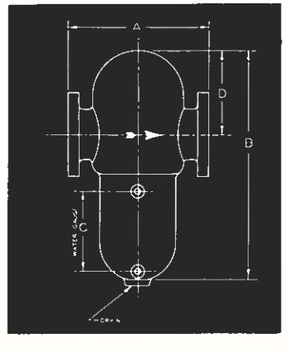
Pipe Size	A	B	C	D	Water Gauge Size	Drain Size	Wt. Lbs.	Code
*1 ½	9¼	15	5½	5	⅜	½	36	EQUIP
*2	9¼	15	5½	5	⅜	½	36	EAGLE
**1½	9¾	15	5½	5	⅜	½	50	EBONY
2	9¾	15	5½	5	⅜	½	50	EDIFY
2½	11	18	6⅜	6	⅜	¾	73	EBLIS
3	13	19½	7	6½	⅜	¾	82	ECLAT
4	14¾	26	10¼	9	⅜	¾	175	EIDER
6	21¼	38	11⅝	12	½	1	450	ELATE

*Screwed Ends.
**250 Lb. Flanges only.

Sizes over 6" in welded construction only.

See charts page 516 & 517 for Capacity and Pressure drop

Reference Dimensions are shown in table above



WRIGHT AUSTIN
DETROIT, MICHIGAN

SPECIAL INFORMATION

TYPE "B" SEPARATORS are constructed for pressures to 250 psi and 450° F.*

1½" and 2" sizes are regularly furnished with female pipe thread connections but are available with flanged ends at extra cost.

Unless otherwise specified, all sizes over 2" are regularly furnished with flanges, faced and drilled to 250 lb. A. S. A. Standard. When so ordered, 125 lb. A. S. A. Standard flanges can also be furnished.

Water Gauge can be furnished on all sizes at extra cost, when so ordered.

To insure accurate quotations, customers should specify pipe size, equipment on which the separator is to be used, rate of steam flow, working steam pressure in psig, and degrees of superheat. This will insure receipt of a separator having the most efficient operating characteristics for the intended use.

*Also made in Cast Steel for superheat service and pressures up to 600 lbs,

Trap To Use With This Separator

Cub Type "AIRXPEL"

Under normal conditions, this trap may be used with excellent results, on Separators up to 4". On larger Separators and under conditions producing large quantities of condensate, the Master series of "Airxpel" traps is recommended. Refer to Catalog 600.

Dimensions (in inches) and Weights

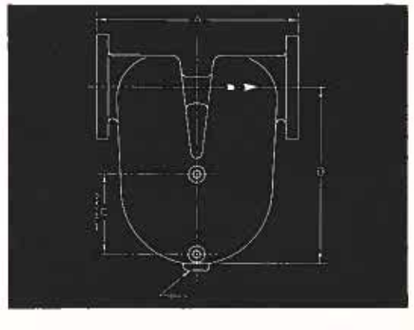
Pipe Size	A	B	C	Water Gauge Size	Drain Size	Weight Lbs.	Code
*1 ½	9¼	9	4¼	⅜	½	30	BACCA
*2	9¼	9	4¼	⅜	½	30	BRAVO
**1½	10½	9	4¼	⅜	½	45	BATON
2	10½	9	4¼	⅜	½	45	BALSA
2½	13¼	12	4⅜	⅜	¾	85	BAKER
3	15¼	13	5½	⅜	¾	120	BANDY
4	18½	15	7½	⅜	¾	185	BRIER
6	24¼	22	9½	½	1	475	BASIS

*Screwed Ends.
**250 Lb. Flanges only.

Sizes over 6" in welded construction only.

See charts page 516 & 517 for Capacity and Pressure drop

Reference Dimensions are shown in table above



HORIZONTAL STEAM SEPARATOR TYPE "B"

General Description

● This Separator is especially convenient where space is limited at the top or sides of the pipe line. No part of the type "B" projects beyond the outside diameter of the pipe flange except the Separator body which projects downward. It can be installed in a horizontal pipe line against the ceiling, or close to parallel lines or wall on either side.

Flow of steam may be directed through the type "B" Separator IN EITHER DIRECTION. Separation of entrained moisture is complete either way. This advantage also permits quicker installation because directional flow problems are eliminated. A slight deviation from the perfectly vertical position of the body does not decrease efficiency of the Separator.

Oblique, corrugated baffles trap entrained moisture and divert it from the path of the flow. Additional baffles at the point of flow reversal extract the remaining moisture.

This construction is a distinctive feature of Wright-Austin Separators and is an important contribution to the production of dry steam and protection of operating equipment.

It is suggested that adequate drainage be provided through an automatic trap.

Serving Steam Users For More Than Half a Century

WRIGHT AUSTIN
DETROIT, MICHIGAN

SMALL STEAM SEPARATORS TYPE "ST"

General Description

● Dry steam is essential if uniform temperature and maximum operating efficiency are to be maintained when using the varied types of steam heated equipment, such as autoclaves, cookers, ironers, dryers, jacketed mixing kettles, pressing machines, sterilizers, plating tanks, etc.

It sometimes happens that steam heated equipment is condemned when the fault is not in the equipment, but is due to moisture in the steam which slows down heating. A Type "ST" has frequently turned such condemnation to praise because it provided the DRY steam which the equipment required.

This Separator is especially designed for use on steam lines supplying processing equipment. There is no perceptible pressure loss through this Separator and there are no small ports or screens to clog. Because this type of Separator is a one-piece casting, there are no moving parts to wear and maintenance is eliminated.

The unique feature of this Separator is the tangentially placed inlet and baffle which imparts a whirling motion to the flow as indicated by arrows in the illustration. This forces the flow of steam against the outside walls and causes instant separation of entrained moisture and foreign particles which gravitate to the baffle protected well at the bottom of the Separator. It also has an additional advantage—the ceaseless scrubbing of the walls keeps them clean and makes this Separator self-cleaning. Dry steam flows up and out of the protected sleeve-like extension as shown in the illustration.

SPECIAL INFORMATION

THE TYPE "ST" STEAM SEPARATOR is made in a one-piece, semi-steel casting with screwed connections.

It is suitable for working steam pressures up to 250 psi and temperatures to 450° F. Water gauge is furnished only on request, at extra cost.

Information on sizes larger than those shown in the table below will gladly be supplied on request. When making inquiry regarding larger sizes, please give pipe size and maximum working pressure on which Separator is to be used.

Separator should be placed in the intake steam line as near as possible to the steam heated equipment which it is to serve. An arrow on the side shows the direction of flow through the Separator.

It is important that the condensate be drained continuously and not allowed to accumulate in the Separator. Drainage preferably should be automatic. The drain connection in the bottom of the Separator should be piped to a steam trap placed at a level which is lower than the Separator.

Trap To Use With This Separator

Cub Type "Airxpel"

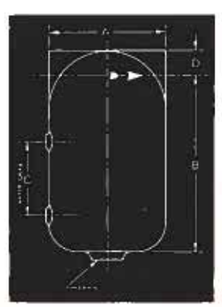
On Separators up to and including 1", the Wright-Austin Cub-Jr "Airxpel" trap in the ½" size is recommended. On Separators in 1½" and 2" sizes, the No. 50 Cub trap in the ½" size should be used.

Both of these steam traps remove entrained air as well as condensate, and thus require no air vent. Each trap has one inlet and two outlets which permit use of horizontal or angle connection in the piping arrangement.

Dimensions (in inches) and Weights

Pipe Size	A	B	C	D	Water Gauge Conn.	Drain Size	Wght. Lbs.	Code Word
½ ¾ 1	4	8⅛	3¼	⅞	⅜	1	10	TABOR TEKNIK TIRADE
1½ 2	6¾	10⅝	4½	1⅜	⅜	1¼	30	TIPTOP TROPHY

Reference Dimensions are shown in table above



SPECIAL INFORMATION

INFORMATION we require before quoting a price: Size of pipe connections; Steam pressure in psig; Direction of flow through Separator; Degrees of superheat; A. S. A. Standard rating of flanges desired.

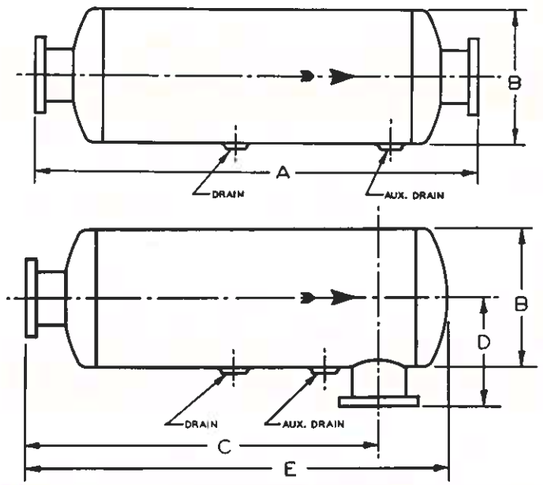
Inquiries and orders should also specify if Type 40 or 41 is required. Also needed are preferences as to dimensions A, B, C and E shown in the table below.

Pipe sizes may be applied to various diameters and lengths of Purifiers according to the load carried.

All dimensions are approximate. Dimensions given in the table below may be varied to suit local conditions and to avoid extra expense in building changes. Shells may be made longer and of smaller diameter or shorter and larger in diameter.

Inlet and outlet pipe connections may be located differently but within reasonable deviations from those listed, and thus fit your piping layout without expensive changes. You will find our Engineering Department cooperative in helping to solve your problems. For special code words to use in telegraphic specifications, see Page 512. Others listed on Page 524.

FOR TRAPS TO USE WITH STEAM PURIFIERS—*See Page 514.*



Dimensions (in inches)

A—Length Face to Face
B—Outside Diameter
C—Center of Side Conn. to End Face
D—Center of Separator to Side Face
E—Length over Head and End Face

Pipe Size	A	B	C	D	E	Main Drain	Aux. Drain	Vol. Cu. Ft.	Code Word
4	96	24	76	17	91	2	1	21.4	NORWAY
	102	24	82	17	97	2	1	23.0	NATAL
5	100	24	80	17	95	2½	1	22.4	PANAMA
	105	24	85	17	100	2½	1	23.8	PERU
6	108	24	84	17	102	3	1	24.0	ROMAN
	129	30	105	21	123	3	1	45.0	RUSSIA
	132	30	108	21	126	3	1	47.0	RUMANIA
8	131	30	103	21	125	3	1½	46.0	SCOTLAND
	136	30	108	21	130	3	1½	48.0	SWEDEN
	144	36	116	24	138	3	1½	74.0	SPAIN
10	156	36	122	25	149	4	2	80.0	TURKEY
	161	36	127	25	154	4	2	83.0	TIBET
12	156	42	116	29	148	4	2	107.0	VICTORIA
	162	48	122	32	154	4	2	145.0	WALES
	168	48	128	32	160	4	2	152.0	YUKON

STEAM PURIFIERS for High Pressure and Superheat

Shown above is a type 41 with end inlet and outlet for Horizontal steam line

General Description

● Modern power plants, operating at high ratings, produce steam of varying quality. The quality of the steam, especially with respect to the percentage of moisture content, changes with the load, with the type of boiler, with the feed water supply, and particularly with the water treatment. The result of any one or a combination of these factors is usually the formation of slugs of water, wet steam, foaming or fog steam. It requires the highest degree of engineering skill and long experience in designing separators to economically provide dry steam under such varying conditions.

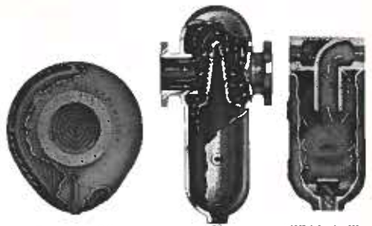
Wright-Austin Steam Purifiers are so designed as to overcome any or all of these conditions at a predetermined load. They provide adequate protection for superheaters by elimination of moisture and dirt. By supplying clean, dry steam to turbine blades and engine valves, they help reduce maintenance, repair and loss of power. Wright-Austin Steam Purifiers are self-cleaning.

Each Purifier is constructed for the working steam pressure specified, and in accordance with the A. S. M. E. Code for Unfired Pressure Vessels. Each is electrically welded, fabricated from flange steel boiler plate having a tensile strength in excess of 55,000 pounds per square inch, and furnished with forged steel nozzles. When specified, this type of Separator is subjected to A.S.M.E. inspection.

With more than half a century of experience in the construction of pressure vessels designed for the separation of moisture from steam, Wright-Austin engineers can provide a practical solution to any steam purifying problem you may have.

WRIGHT AUSTIN
DETROIT, MICHIGAN

SEPARATORS
for
Compressed Air and Gas



Type "S" Oil and Moisture Separator Self-Cleaning

Type "E" Horizontal Separator

"Whirlwind" Type "T" Air and Gas Purifier

General Description

● It is well known that dry, clean air increases the efficiency of air-operated equipment when the equipment is in good operating condition. It is also known that the capacity of air for holding moisture decreases one-half with each 20°F. drop in temperature. Thus, a cubic foot of air at 120°F., when cooled to 100°F., loses one-half of its moisture content through condensation. It is therefore important for best results to install a separator in the line ahead of, and as close as possible to, air operated equipment.

For vacuum and pressures to 50 psi

The Type "S" follows the pattern of the same type separator shown on page 510, but slightly modified after exhaustive tests for its use in air and gas lines. Years of use have demonstrated the value of these improvements.

For pressures from 50 to 250 psi

The Type "E" is a one-piece casting without joints or gaskets. Once installed and properly drained by an automatic trap, it can be forgotten. The extra receiver capacity of this separator makes it especially valuable when it is placed at the end of a large main serving a group of short branch lines.

For pressures from 0 to 600 psi

The Type "T" is a small air purifier exclusively designed for use close to air-operated equipment. It is light enough to be supported by line connections only. Made in semi-steel for pressures 0 to 250 psi and in bronze for pressures to 600 psi.

The unique method of separation employed in this air purifier is described on page 506. These air purifiers are successfully used to remove moisture from compressed air lines to Diesel engines. There is no perceptible pressure loss through this purifier—no small ports or screens to clog—no moving parts to wear and no maintenance.

SPECIAL INFORMATION

PROPER INSTALLATION of separators on compressed air distribution systems has always been a continuing study by Wright-Austin engineers. The resulting data, gathered over several decades, form the basis for recommended installation procedures. For our recommendations, send a rough sketch or blueprint of your piping system together with a statement of your problem.

It is important to the efficient operation of the air purifier or separator that accumulated condensate and oil be drained at frequent intervals. If conditions prevent immediate use of a trap, a water leg of 2″ or 3″ pipe, 2 ft. or more in length may be attached to the drain and fitted with a suitable hand valve for periodic draining. This is not recommended but may serve as a temporary arrangement until a permanent trap installation can be made.

Flanges faced and drilled to 125 lb. A. S. A. Standard only are furnished on Type "S". Flanges for either 125 lb. or 250 lb. A. S. A. Standard can be furnished on Type "E". Type "T" is furnished with screwed connections only. Water Gauges are not attachable on 1½″ and 2″ sizes of Type "S" but can be supplied on larger sizes at extra cost. Water Gauges can be supplied on all sizes of Types "T" and "E", at extra cost.

Trap To Use With This Separator

Type 23AC

The Type 23AC trap is recommended on pressures to 125 psi. It never needs priming and easily handles any liquid that will flow through a pipe. Outward opening of valve permits larger orifice for free flow of oily emulsion from compressed air lines. Deep water seal prevents waste of air and a strainer can be provided within the body when needed. For pressures over 125 psi, No. 50AC trap is recommended. See Catalog 600 for details of construction.

Dimensions (in inches) and Weights

TYPE "T"

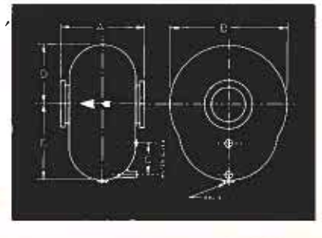
Pipe Size	A	B	C	D	Water Gauge Conn.	Drain Size	Wght. Lbs.	Code Word
½ ¾ 1	4	8⅛	3¼	⅞	⅜	1	10	TABOR TEKNIK TIRADE
1½ 2	6¾	10⅝	4½	1⅜	⅜	1¼	30	TIPTOP TROPHY

TYPE "S"

Pipe Size	A	B	C	D	E	Water Gauge Conn.	Drain Size	Wght. Lbs.	Code Word
*1½	10	12		6⅛	9⅜		¾	65	SAXON
*2	10	12		6⅛	9⅜		¾	65	SAURY
2½	10¼	14½	3¼	7 1/16	10 7/16	⅜	1	100	SKINY
3	10½	15	4	7½	10½	⅜	1	120	SATIN
4	12⅜	19	5⅜	9½	13½	⅜	1	210	SAINT
5	15½	23	6⅝	11½	15½	½	1¼	330	SCENE
6	17	25	8¼	12½	17½	½	1½	435	SCOPE
8	18½	29	9¾	14½	21½	½	1½	650	STICK

*Screwed Ends

Reference Dimensions are given in table above



For Dimensions on Type "E" Refer to Page 504

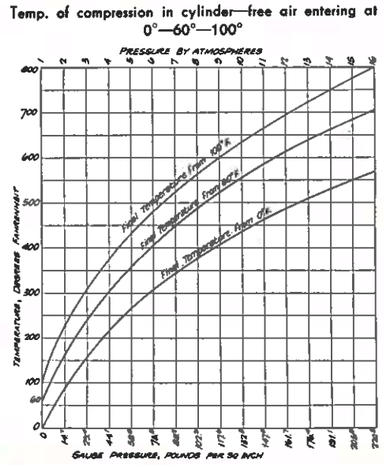
SPECIAL INFORMATION

FLANGES are made of forged steel, faced and drilled in accordance with A. S. A. Standards.

Water gauges can be furnished at extra cost, when so ordered.

Inquiries should give pipe size, maximum working pressure, and CFM if known. For separation problems other than air and water, please advise liquid to be separated and specific gravity of gas, if known.

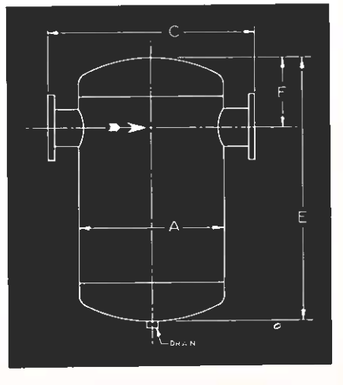
NOTE: For traps to use with these separators, see Page 508.



Dimensions (in inches)

Pipe Size	A	C	E	F	Drain	Code Word
3	16	24	28	10	¾	WACK
4	18	26	32	11	1	WAND
5	24	34	42	17	1	WARD
6	24	34	42	17	1	WARE
8	24	34	48	18	1½	WASP
10	24	36	48	18	1½	WERE
12	30	42	54	24	2	WHEN
14	36	48	60	30	2	WINS
16	36	48	60	30	3	WORN

Reference Dimensions are given in table above



Horizontal Air and Gas Separators
Type "EW"

Welded Construction

General Description

● This type of Separator is especially designed to eliminate entrained liquid from air and gases and is so flexible in its adaptability to a variety of conditions, both constructional and operating, that it is outstanding in the economies it effects for purchasers, both initially and over the long term of use.

The welded construction employed in its manufacture enables our engineers to produce a separator "custom built" to a customer's specifications, yet at a price comparable to that of separators produced by more conventional methods.

It is also possible with this construction to locate inlet and outlet connections within a reasonable variation from the "F" dimensions given in the table, an important consideration when the separator is placed in existing piping.

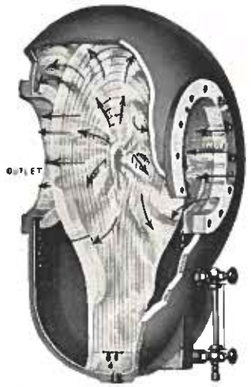
Type "EW" Separators are regularly fabricated from flange quality steel in accordance with A.S.M.E. Code requirements, but they can be supplied in other metals and alloys to meet special conditions.

Table showing the relative volumes of compressed air at various pressures

Gauge Pressure Pounds	Volume of Free Air Corresponding to One Cubic Foot of Air at Given Pressure	Corresponding Volume of One Cubic Foot of Free Air at Given Pressure	Gauge Pressure Pounds	Volume of Free Air Corresponding to One Cubic Foot of Air at Given Pressure	Corresponding Volume of One Cubic Foot of Free Air at Given Pressure	Gauge Pressure Pounds	Volume of Free Air Corresponding to One Cubic Foot of Air at Given Pressure	Corresponding Volume of One Cubic Foot of Free Air at Given Pressure
0	1.00	1.00	40	3.72	.3687	100	7.802	.1281
1	1.068	.9356	45	4.06	.2462	110	8.483	.1178
2	1.136	.8802	50	4.40	.2272	120	9.170	.1090
3	1.204	.8305	55	4.74	.2109	130	9.843	.1016
4	1.273	.7861	60	5.08	.1967	140	10.52	.0950
5	1.34	.7462	65	5.42	.1844	150	11.20	.0892
10	1.68	.5951	70	5.762	.1735	160	11.88	.0841
15	2.02	.4949	75	6.102	.1638	170	12.56	.0796
20	2.36	.4236	80	6.442	.1552	180	13.24	.0755
25	2.7	.3703	85	6.782	.1474	190	13.92	.0712
30	3.04	.3288	90	7.122	.1404	200	14.60	.0684
35	3.38	.2957	95	7.462	.1340			

WRIGHT AUSTIN
DETROIT, MICHIGAN

HORIZONTAL OIL SEPARATORS
for Low Pressure and Vacuum



Type "S" for Steam Pressure Service
Type "V" for Vacuum Steam Service

General Description

● Most engineers know that a light film of oil on the steam surface of equipment can drastically reduce heat transfer. What is not so generally known is that the oil can be so thoroughly eliminated from the steam that higher temperatures can be obtained from the separated steam for textile, chemical, laundry and other processes.

The method employed in Wright-Austin Oil Separators for separating oil from steam is a simple use of the difference in specific gravity between the oil and steam. An advantage exclusive to Wright-Austin Type "V" Separators is a water spray furnished to wet the separating surface and thus provide highest operating efficiency.

Type "S" is extensively used on exhaust steam lines from engines, pumps, compressors and many other classes of equipment. Some of the advantages which accrue to users of the Types "S" and "V" Separators shown here, both having the same basic design but with variations to suit conditions and load, may be summed up as follows: Highest attainable separation of oil from steam; Complete elimination of maintenance; Separators are SELF-CLEANING; Longer life for heat exchange equipment; Better use of water supply; Negligible back pressure.

See charts page 516 & 517 for Capacity and Pressure drop

Types "S" and "V" Welded Const.

Type "S" Cast Semi-steel

SPECIAL INFORMATION

Type "S" Separator is designed for service on pressures up to 50 psi. Type "V" Separator is designed for vacuum service only.

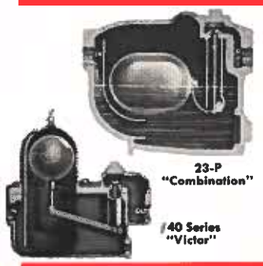
Water gauges are supplied on all sizes of both "S" and "V" except 1½" and 2" sizes of Type "S".

All separator flanges are faced and drilled to A.S.A. 125 lb. Standard.

All sizes of Types "S" and "V" over 8" are made in welded all-steel construction.

Our engineering department will gladly supply dimensions of special sizes of either Type "S" or "V" for application in confined space. A sketch of the space available will be helpful.

Traps To Use With These Separators
Operating non-condensing



Two types of Wright-Austin Traps are recommended—the "Victor" for the larger sizes and the "Combination" for the smaller sizes. Both are float-operated, low pressure traps. Both will handle a liquid of any consistency that will flow through a pipe.

Their remarkable success in handling the thick, gummy emulsion that flows from an oil separator is based on two distinct advantages. First is the large, over-size valve openings. And the second is the outward opening of the valves—away from the seat—in the same direction as the outgoing emulsion of oil and water.

Dimensions (in inches) and Weights

Type "S"—Semi-steel Construction

Pipe Size	A	B	C	D	E	Water Gauge Conn.	Drain Size	Wght. Lbs.	Code Word
*1½	10	12		6⅛	9⅜		¾	65	SAXON
*2	10	12		6⅛	9⅜		¾	65	SAURY
2½	10¼	14½	3¼	7 7/16	10 7/16	⅜	1	100	SKINY
3	10½	15	4	7½	10½	⅜	1	120	SATIN
4	12⅜	19	5⅜	9½	13½	⅜	1	210	SAINT
5	15½	23	6⅝	11½	15½	½	1¼	330	SCENE
6	17	25	8¼	12½	17½	½	1½	435	SCOPE
8	18½	29	9¾	14½	21½	½	1½	650	STICK

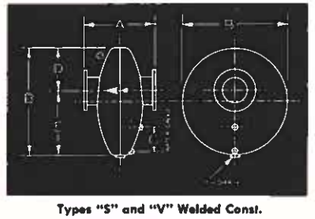
*Screwed Ends

Type "S"—Welded Construction

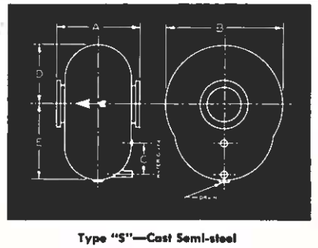
10	24	36	7	16	20	½	1½	450	SWAT
12	26	42	7	19	23	½	1½	500	SWAB
14	28	48	7	20	28	½	1½	600	SWET
16	28	54	7	23	31	½	1½	800	SWEL
18	30	54	7	23	31	½	2	850	SWIM
20	35	60	7	29	37	½	2	1100	SWOR

Type "V"—Welded Construction

10	26	42	7	19	23	½	2	500	VALUE
12	28	48	7	20	28	½	2	600	VUTAL
14	28	54	7	23	31	½	2½	800	VENAL
16	30	54	7	23	31	½	3	850	VERGE
18	35	60	7	26	34	½	3	1100	VESTA
20	40	72	7	32	40	½	4	1400	VICAR



Types "S" and "V" Welded Const.



Type "S"—Cast Semi-steel

WRIGHT AUSTIN
DETROIT, MICHIGAN

"STANDARD SPECIAL"
Welded Steel
RECEIVER—SEPARATORS
Made to order from
Wright-Austin Standard Parts

"Standard Specials" cost less than "Special" separators because "Specials" are built to order in every part. Wright-Austin "Standard Specials" are less costly because they are made from standard parts which are adaptable to a wide variety of special constructions. Preparation work and primary engineering work on the parts from which these separators are built is an accomplished fact.

If modifications are designated by our engineers in order to meet a customer's requirements, the changes recommended are most easily and economically made by the Wright-Austin method. Customers receive the benefit of these savings in prices considerably lower than those for comparable "special" construction. And there is an important saving in time, too.

Construction

Flexibility of this type of construction is exemplified in the great variety of conditions which "Standard Special" Receiver Separators have been called upon to meet and the problems their use has solved.

Every "Standard Special" is constructed of flange quality Steel and assembled by certified welders. When specified, this type of Separator is subjected to A.S.M.E. inspection.

Each Separator is given a hammer test at 1½ times the working steam pressure and a hydrostatic test of double the working steam pressure for which it is designed. In certain cities and states, A.S.M.E. construction and inspection of unfired pressure vessels are mandatory.

Consult local authorities or Wright-Austin Engineering Dept. concerning laws and regulations.

NOTE:
Wright-Austin Standard-Special" Receiver-Separators are made for any temperature, pressure and steam velocity in commercial use.

This illustration shows a Wright-Austin Welded Separator under test by an A. S. M. E. inspector, who is using a 10 lb. sledge to give the hammer test to the welded joints, while the Separator is under 1200 lbs. hydrostatic pressure. It is built to conform with the A.S.M.E. Code for Unfired Pressure Vessels.

The Separator is shown upside down, on the top outlet flange, for testing purposes. It is a No. 14N Angle Type, having side inlet and top outlet, built for 600 lbs. steam working pressure. The pipe connections are 12" with Series 60 flanges.

12" Angle Separator under 275 psi and 200° F Superheat. Side Inlet and Top Outlet.

Advantages of Separators Built to Order the Wright-Austin Way

First—Complete elimination of moisture at high steam velocities. Dangerous slugs of water carried over from priming or flooded boilers or from the pockets in a pipe line, will be completely removed, even at high steam velocities, by a Separator having baffle area and steam space especially proportioned to the velocity and volume of the steam.

Second—Elimination of serious vibration in steam lines. A "Standard Special" Separator having large receiver capacity and designed for a particular installation will furnish an extra large storage capacity for steam as a reserve and a cushion, thus eliminating vibration and loss of efficiency. For reciprocating engines, we recommend that the internal volume of the separator should be 3 to 5 times the volume of the cylinder.

Just as Standard Separators are built for average conditions and are satisfactory for all ordinary pressures, temperatures and steam velocities, so "Standard Special" Separators are built for unusual service conditions and should be provided where average conditions are exceeded.

(*Continued on next page*)

Serving Steam Users For More Than Half a Century.

Live Steam Vertical Steel Receiver-Separator No. 10N

Advantages of Separators Built to Order the Wright-Austin Way

(Continued)

The Wright-Austin Company is always glad to suggest designs for efficient operation under extraordinary conditions of service.

THIRD—Convenient arrangement of connections to fit piping, thus avoiding pipe changes that frequently cost more than the price of the Separator.

For instance, a separator may have inlets for two steam supply lines and an outlet to one engine, or it may have one inlet for steam supply and two or three outlets to as many engines. Inlets and outlets may occupy any relative position with respect to each other. See illustration on this page.

FOURTH—Adaptability to any pressure and any temperature in commercial use. An examination of the illustrations on this page and on succeeding pages will show some of the variety of constructions possible.

FIFTH—Arrangement of dimensions and volume to suit purchaser. Practically any requirement can be met.

SIXTH—"Standard Special" Separators are especially valuable with steam turbines. They prevent slugs

(Continued on next page)

"Standard Special" Receiver Separator

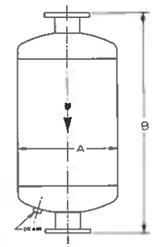
Receiver-Separator
No. 3-11B122
Side Inlet—3 Outlets

Code Words for Welded Receiver-Separator Specifications

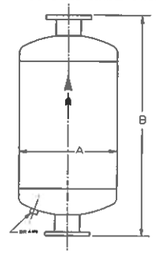
Presser—For working steam pressure of —— lbs.
Rodeo—Companion flanges wanted with separator.
Tropical—Superheat is —— degrees F.
Torrid—Total temperature —— degrees F.
Vaporish—Pounds of steam per hour ——.
Volume—Internal volume of Separator in cubic feet ——.
Welder—Welded Steel Receiver Separator Number ——.
Diametric—Outside Diameter "A"
Distend—Vertical Face to Face "B"
Dilate—Length Over Heads "E"
ETC.
(See definitions of Dimension Symbols preceding table.)
Detain—Dimension "C"
Diverse—Dimension "D"
Declare—Dimension "F"
Demand—Dimension "G"
Devious—Dimension "H"
Divider—Dimension "K"
Devoid—Size of drain connection.
NOTE—See general telegraphic code words on page 524 and inside back cover.
See page 514 for information which should be supplied to help our engineers furnish you with a sensible quotation.

Please indicate type of Separator wanted by giving number under diagram, and code word given in table on next page. All dimensions in table are approximate, and may be changed, if necessary.

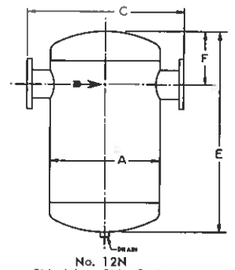
Pipe sizes may be varied to suit load conditions and piping layout.



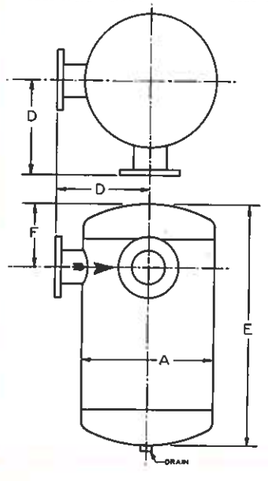
No. 10N
Top Inlet—Bottom Outlet
Code Word—CRAFT



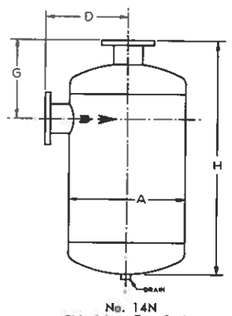
No. 11N
Bottom Inlet—Top Outlet
Code Word—CREST



No. 12N
Side Inlet—Side Outlet
Code Word—GRAIN



No. 13N
Angle Inlet and Outlet
Code Word—GRAND



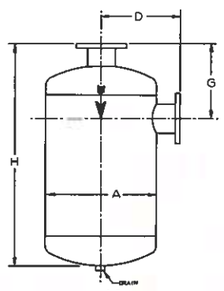
No. 14N
Side Inlet—Top Outlet
Code Word—INSET

Symbols Used at Head of Columns

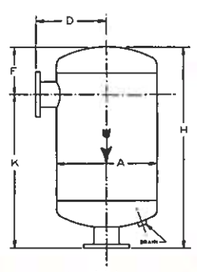
A —*Outside Diameter (All Diagrams)*
B —*Length Over Head Flanges (See 10N-11N)*
C —*Dimension Over side Flanges (See 12N)*
D —*Dimension—Center to Face—Right Angle Flanges (See 13N—14N—15N—16N—17N)*
E —*Length Over Heads (See 12N—13N)*
F —*Dimension—Head to Center of Side Flange (See 12N—13N—16N—17N)*
G —*Dimension—Center of Side Flange Over Head Flange (See 14N—15N)*
H —*Length Over Head and Opposite Head Flange (See 14N—15N—16N—17N)*
K —*Dimension—Center of Side Flange Over Head Flange (See 16N—17N)*

Dimensions (in inches)

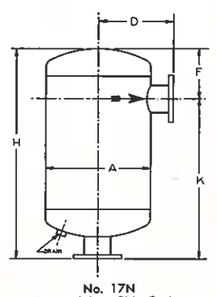
Pipe Size	A	B	C	D	E	F	G	H	K	Drain	Vol. Cu. Ft.	Code Words
3	12¾	28	20	10	20	8	12	24	16	¾	1.3	ALASKA
3	12¾	32	20	10	24	8	12	28	20	¾	1.5	ALGERIA
3	16	38	24	12	30	8	12	34	26	¾	3.0	ANGOLA
3	16	44	24	12	36	8	12	40	32	¾	3.7	AZORES
4	16	38	25	12	30	9	13½	34½	25½	1	3.0	BAHAMA
4	16	44	25	12	36	9	13½	40½	31½	1	3.7	BELGIUM
4	18	44	27	13	36	9	13½	40½	31½	1	4.6	BOLIVIA
4	24	56	33	16	48	10	14½	50½	42½	1	12.0	BURMA
5	18	44	28	14	36	10	15	41	31	1	4.6	CEYLON
5	18	56	28	14	48	10	15	53	43	1	7.0	CHILE
5	24	56	34	17	48	12	17	53	41	1	12.0	COLOMBIA
5	24	62	34	17	54	12	17	59	47	1	14.0	COLON
6	18	58	29	14½	48	12	17½	53½	41½	1	7.0	ELLICE
6	24	58	35	17½	48	13	18½	53½	40½	1	12.0	ELMORO
6	24	64	35	17½	54	13	18¼	59½	46½	1	14.0	ERITREA
6	30	70	41	20½	60	14	19½	65½	51½	1	21.0	ETHIOPIA
8	24	66	36	18	54	14	20	60	46	1½	14.0	FABLAS
8	24	72	36	18	60	14	20	66	52	1½	15.0	FENYANG
8	30	72	42	21	60	16	22	66	50	1½	21.0	FIREN
8	30	84	42	21	72	16	22	78	62	1½	29.0	FRISIA
10	24	72	37	18½	60	16	22½	66½	50½	2	15.0	GANGES
10	30	72	43	21½	60	18	24½	66½	48½	2	21.0	GATUN
10	30	84	43	21½	72	18	24½	78½	60½	2	29.0	GRANADA
10	36	84	49	24½	72	19	25½	78½	59½	2	38.0	GUIANA
12	30	84	44	22	72	18	25	79	61	3	29.0	IRAN
12	30	96	44	22	84	18	25	91	73	3	34.0	IRAQ
12	36	96	50	25	84	20	27	91	71	3	44.0	IRELAND
12	42	108	56	28	96	22	29	103	81	3	68.0	ITABO
14	30	96	45	22½	84	18	25½	91½	73½	3	34.0	KASHMIR
14	36	96	51	25½	84	20	27½	91½	71½	3	44.0	KEEWAT
14	42	108	57	28½	96	22	29½	103½	81½	3	68.0	KENYA
14	48	120	63	31½	108	22	29½	115½	93½	3	128.0	KODIAK
16	36	110	52	26	96	22	30	104	82	3	50.0	LEYTE
16	48	110	64	32	96	24	32	104	80	3	98.0	LIBERIA
16	48	122	64	32	108	24	32	112	88	3	128.0	LIBYA
16	60	134	74	37	120	28	36	128	100	3	172.0	LUZON



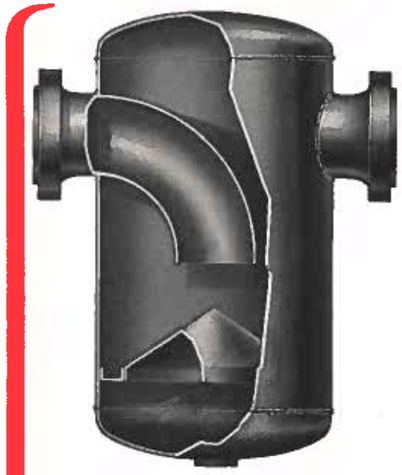
No. 15N
Top Inlet—Side Outlet
Code Word—INLAY



No. 16N
Side Inlet—Bottom Outlet
Code Word—INDEX



No. 17N
Bottom Inlet—Side Outlet
Code Word—INFRA



Live Steam Horizontal Steel Receiver-Separator No. 12N

Advantages of Separators Built to Order the Wright-Austin Way

(Continued)

of water and pipe scale or other foreign matter from striking the blades of the turbine and perhaps seriously eroding them or causing other damage. "Steam Purifiers" such as are described on page 507 perform the same service.

Engineers formerly thought that Separators were not necessary with steam turbines, especially if superheated steam was used. Practical experience, however, has taught engineers and manufacturers that slugs of water and dirt do get into the turbine, even with superheated steam, unless a Separator or Purifier is installed on the steam line. Superheaters will not evaporate water and a slug of water due to a priming boiler or other reason will frequently pass directly through a superheater into the steam piping and so into the turbine unless a Separator or Purifier is provided to eliminate it.

SEVENTH—These Separators permit the progressive engineer to work out his own ideas of piping arrangements and design of apparatus by utilizing the extensive experience with, and knowledge of, Separator construction which the Wright-Austin Company possesses, and which is always available through Wright-Austin engineers.

This is an Example of ADAPTABILITY

Common to Wright-Austin "Standard -Special" Type of Construction

This Separator was so designed that it would require a minimum shutdown period for installation. It was made with an extension to fit between flanges already in place.

Flexibility is an Outstanding Feature

The Separator shown above and other "Standard-Special" welded Separators shown in this catalog are but a few of the many different types and sizes available.

Flexibility is an outstanding feature in the construction of these separators—in size of the body, and the location and size of pipe connections—enabling us to provide a separator that is "tailor-made" to fit individual requirements.

Volumetric capacity may be varied by increasing or decreasing both the diameter of the body and the length, or by other changes in dimensions to suit a specific set of conditions.

This often saves time and labor by avoiding expensive piping layout changes, and by reducing the length of a shutdown for replacement. Complications also are avoided on original installations where one or more dimensions are restricted because of space limitations.

If you will send a sketch of the piping layout showing the proposed location of the separator in the piping system and any limiting structural conditions, Wright-Austin engineers will be glad to offer suggestions without obligation to you.

SPECIAL INFORMATION

Flanges are made of forged steel, faced and drilled to A.S.A. Standards.

Water gauges can be furnished on all types and sizes of "Standard-Special" separators at extra cost, when so ordered.

See page 512 for special code words for pressure, superheat, etc.

In order to provide prompt service to those placing orders, requesting quotations or seeking definite application information, it is suggested by our engineering department that the following information should be supplied:

1. Size of Pipe Connections
2. Working Steam Pressure in psig
3. Direction of Steam Flow Through the Separator—Horizontal, Upward, Downward, or at an angle
4. Degrees of Superheat
5. Flanges desired—A.S.A. Standard
6. Type of Separator, designated by number and letter of illustration

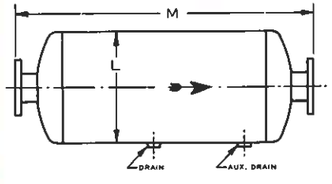
Traps To Use With "Standard-Special" Receiver-Separators

Master "AIRXPEL" Traps

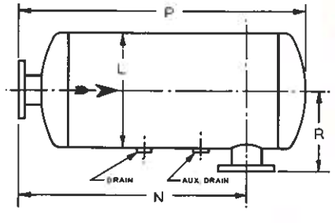
Special features are: automatic elimination of air; straight line pipe connections; long life of parts; alloy valves and seats; internal water seal that prevents waste of steam. Capacities to 62,000 lbs. of water per hour. Pressures to 300 psi. Others to 700 psi.

"Emergency" Type Traps

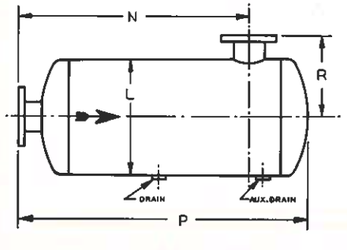
Special features are: capacity to handle large slugs of water; to handle light loads without wire drawing; unique three-stage discharge valve arrangement; operates on any pressure from 0 to 200 psi without adjustments. Especially valuable on fluctuating pressures or flow.



No. 20N
End Inlet—End Outlet
Code Word—WEDGE



No. 21N
End Inlet—Bottom Outlet
Code Word—WAGON

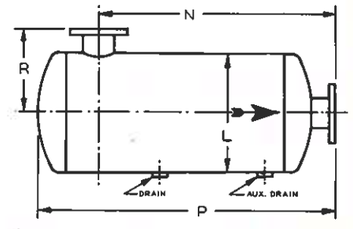


No. 22N
End Inlet—Top Outlet
Code Word—WHEEL

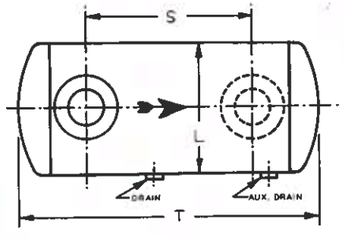
Dimensions (in inches)

Pipe Size	L	M	N	P	R	S	T	Size Drain	Vol. Cu. Ft.	Code Word
3	16	44	32	40	12	20	36	¾	3.7	WINDY
	18	44	31½	40½	13	18	36	1	4.6	WINSO
	24	56	42½	52½	16	28	48	1	12.0	WINTE
4	18	44	31½	40½	13	18	36	1	4.6	WANDA
	24	56	42½	52½	16	28	48	1	12.0	WADES
	24	62	47	59	17	30	54	1	14.0	WANTE
5	18	44	31½	40½	13	18	36	1	4.6	WACES
	24	56	42½	52½	16	28	48	1	12.0	WESTY
	30	70	51½	65½	20½	32	60	1	21.0	WERDE
6	24	64	46½	59½	17½	28	54	1	14.0	WEATS
	30	70	51½	65½	20½	32	60	1½	21.0	WENZE
	36	84	59½	78½	24½	34	72	1½	38.0	WECYS
8	24	64	46½	59½	17½	28	54	1½	14.0	WANCO
	30	70	51½	65½	20½	32	60	1½	21.0	WOTIS
	36	84	59½	78½	24½	34	72	2	38.0	WODAN
10	30	70	51½	65½	20½	32	60	2	21.0	WILSA
	36	84	59½	78½	24½	34	72	2	38.0	WASTE
	42	108	81	103	28	52	96	3	68.0	WORTS
12	36	84	59½	78½	24½	34	72	2	38.0	WISTA
	42	108	81	103	28	52	96	3	68.0	WARES
	48	120	93½	115½	31½	64	108	3	128.0	WOTEN
14	42	108	81	103	28	52	96	3	68.0	WATER
	48	120	93½	115½	31½	64	108	3	128.0	WIGES
	54	120	93½	115½	34½	64	108	3	160.0	WETTY
16	48	120	93½	115½	31½	64	108	4	128.0	WOSEY
	54	120	93½	115½	34½	64	108	4	160.0	WIMSY
	60	134	100	128	37	64	120	4	172.0	WAXES

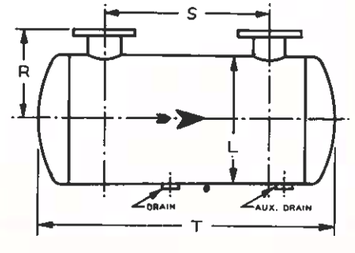
Reference letters in dimension table, above apply to diagram on this and opposite page.



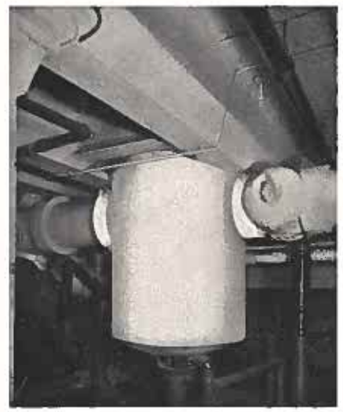
No. 23N
Top Inlet—End Outlet
Code Word—WATCH



No. 24N
Top Inlet—Top Outlet
Code Word—WAFER



No. 25N
Side Inlet—Side Outlet
Code Word—WINCH



14" Horizontal Separator Installed Close to Ceiling. Handles 20,000 Lbs. of Steam per Hour at 250 psi and 150° F. Superheat.

Why ADEQUATE Trapping Is Stressed

It is, perhaps, needless to repeat what every competent engineer knows—that automatic trapping should be provided on steam separators. But what is sometimes neglected is to have trap CAPACITY large enough to DISPOSE of condensate as FAST as it is generated.

No separator, however well designed to provide high efficiency, will deliver the results expected if performance is handicapped through incomplete or delayed removal of accumulated condensate. While separators like those shown here, and on the pages immediately preceding, have storage capacity sufficient to accommodate sudden surges of liquid above normal flow, a trap that is too small can aggravate this abnormal condition. Trap capacity, therefore, should be such that an abnormal condition can be corrected automatically, and quickly enough to preserve the continuous operation of the separator at peak efficiency.

The "Emergency" Steam Trap shown on the opposite page is unique for handling such conditions. Its three-valve discharge responds instantly to sudden fluctuations in flow of condensate—the stirrup arrangement operates one, two or all three valves. Capacity of the trap increases progressively as the pressure increases, contrary to ratings on other types of traps. This is another example of the attention to design detail and of the engineering "know-how" that has kept Wright-Austin equipment

"At the Fore Since '94"

WRIGHT-AUSTIN "CYCLONE" EXHAUST HEADS AND MUFFLERS

General Description

The principle of design of the Wright-Austin "Cyclone" exhaust head eliminates both spray and noise from exhaust pipes. The steam entering the exhaust head from below is deflected by the first cone (as shown in the illustration at the upper right) and the flow is reversed passing upward between the outer and inner walls. It is again diverted by the inverted cone which forms the top, the direction is reversed and the steam flows from the exhaust head as light smoke from a chimney—without back pressure—absolutely noiseless—free from entrained moisture.

In no other exhaust head will there be found this efficient design principle.

Large steam space is provided in the head and the discharge opening is from 2 to 4 times the area of the inlet pipe. Drain gutters around baffles catch condensate which is drained through copper drip pipes to condensate outlet at the bottom of the head.

Our Engineering Department will be glad to make recommendations for special conditions, where there is unusually loud exhaust noise or other difficult problems to be solved, such as exhausting steam at high temperatures.

SPECIAL INFORMATION

"CYCLONE" exhaust heads are constructed of the best grade of steel, heavily galvanized. All seams in the smaller sizes are riveted for strength and sealed. Rivets are of rust resisting material, and the lower section of the base and flange collar are copper. Sizes over 18" are furnished in welded construction only. When asking for quotations, please give—

1. Size of exhaust pipe.
2. Maximum pounds of steam per hour to be handled by Exhaust Head.
3. Maximum exhaust steam pressure.
4. Source of exhaust.

Sizes up to 3½ inches are furnished with standard pipe thread nipples. Sizes 4 inches and larger are furnished with a Standard 125 lb. A.S.A. Flange. In sizes over 20 inches the flange on the exhaust head is made to conform in diameter and drilling with the flange on the exhaust pipe. Companion flanges can be furnished when specified, at extra cost.

Made in sizes up to 40 inches. Prices and details of sizes larger than 12 inches upon request. Sizes up to and including 12 inches usually are carried in stock.

Diagram Showing Flow of Steam Through Head. Baffles and internal condensate drains also are shown.

Dimensions (in inches) and Weights

Size of Exhaust Pipe	Diameter of Outlet	Outside Diameter	Height	Size of Drain	Shipping Weight (Pounds)	Code Word
1	4	10	18½	½	30	PAGAN
1½	4	10	18½	½	30	PAINT
2	5	12	21	¾	35	PANEL
2½	5	12	21	¾	35	PAPER
3	6½	14	23¾	1	60	PARTY
3½	6½	14	23¾	1	60	PASTE
4	8	16	26¾	1	72	PATCH
5	8½	18	30½	1¼	98	PECAN
6	11	21	37	1¼	130	PEDAL
8	15	27	44½	1½	208	PEONY
10	18⅝	33	52	1½	319	PIECE
12	20	37	57½	2	425	PIPER

20" Cyclone Exhaust Head, 75" dia. by 105" high is made for extra heavy duty, of special welded steel construction throughout.

SPECIAL INFORMATION

BECAUSE this type of Exhaust Head incorporates the basic principles used so successfully in our Separators for extraction of oil and moisture from fluids under pressure, it may be used on certain types of exhaust involving higher temperatures than is considered normally practicable.

When asking for quotations, please give: 1. Size of exhaust pipe; 2. Maximum pounds of steam per hour to be handled by Exhaust Head; 3. Maximum exhaust steam pressure; 4. Source of exhaust.

Our Engineering Department will be glad to make recommendations for special conditions, such as unusually loud exhaust noise, exhausting steam at high temperatures, or other problems to be solved.

Sizes 4" and smaller have threaded pipe connections, as shown in small illustration at bottom of page. Sizes 6" and larger are furnished with 125 lb. A.S.A. Standard flanges, drilled and faced. Flanges are cast integral with body of the head and have slotted bolt holes as shown in illustration below. Bolt holes have recess to hold bolt head from turning.

Information on sizes above 8" will be supplied on request.

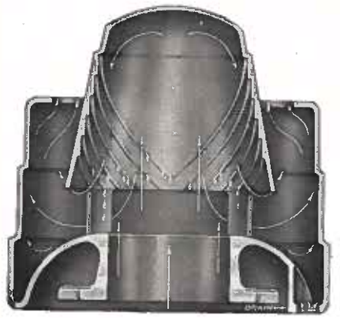
Dimensions (in inches) and Weights

Pipe Size	Diameter	Height	Drain Connection	Flange O.D.	Weight	Code Word
1½	6	6	½	Screwed	12	EXCESS
2	6	6	½	"	12	EXCERPT
2½	9	9	¾	"	28	EXEMPT
3	9	9	¾	"	28	EXHALE
4	11½	10⅞	1	"	40	EXODUS
6	16	15	1	11	130	EXPLOIT
8	20	18	1¼	13½	180	EXPLOSE

Note unobtrusive appearance of this head. Note also recess for bolt head. This construction on 6" and over.

CAST IRON EXHAUST HEADS TYPE "FF"

(Free Flow)



General Description

Type "FF" (Free Flow) Cast Iron Exhaust Heads are designed on basically sound engineering principles that have proved highly efficient in separating oil and entrained moisture from steam and in eliminating noise and vibration.

Features that contribute to the effectiveness of these Heads are:

Large internal areas which provide ample cooling and collecting surfaces; ribs which are cast integral with the inside surface of the expansion dome; two-stage expansion of the steam—in the dome and again in the body space surrounding the dome; large outlet area which is much greater than the area of the inlet pipe; and permanence of the construction which parallels the long life of the material.

The large internal areas permit rapid and adequate expansion of the steam for effective extraction of oil and moisture. Separation is quick and complete, aided by the directional ribs which collect oil and moisture and carry this liquid to the reservoir away from the steam flow.

The large area of the outlet permits escape of the dry steam at low velocity, thus eliminating exhaust noise and preventing back pressure.

These Exhaust Heads are relatively inexpensive and require no maintenance.

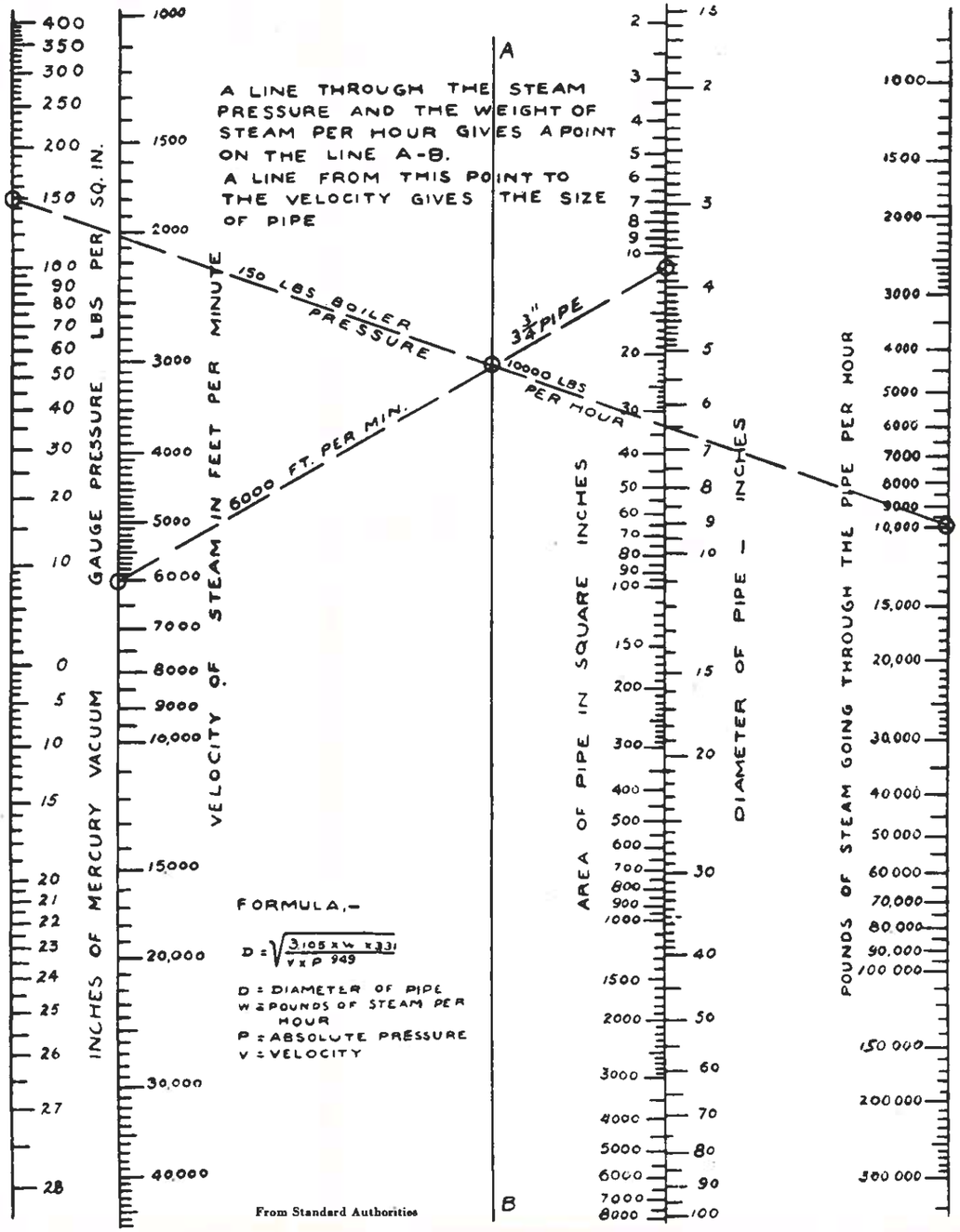
So confident are we in the efficiency of these Exhaust Heads that we guarantee each to be satisfactory in every respect or it may be returned at our expense.

Sizes 4" and smaller have this construction with threaded connection.

WRIGHT AUSTIN
DETROIT, MICHIGAN

FLOW OF STEAM IN PIPES

Chart for determining pipe size, velocity and weight of steam delivered.
This Chart will be found convenient for use in ascertaining approximate values.

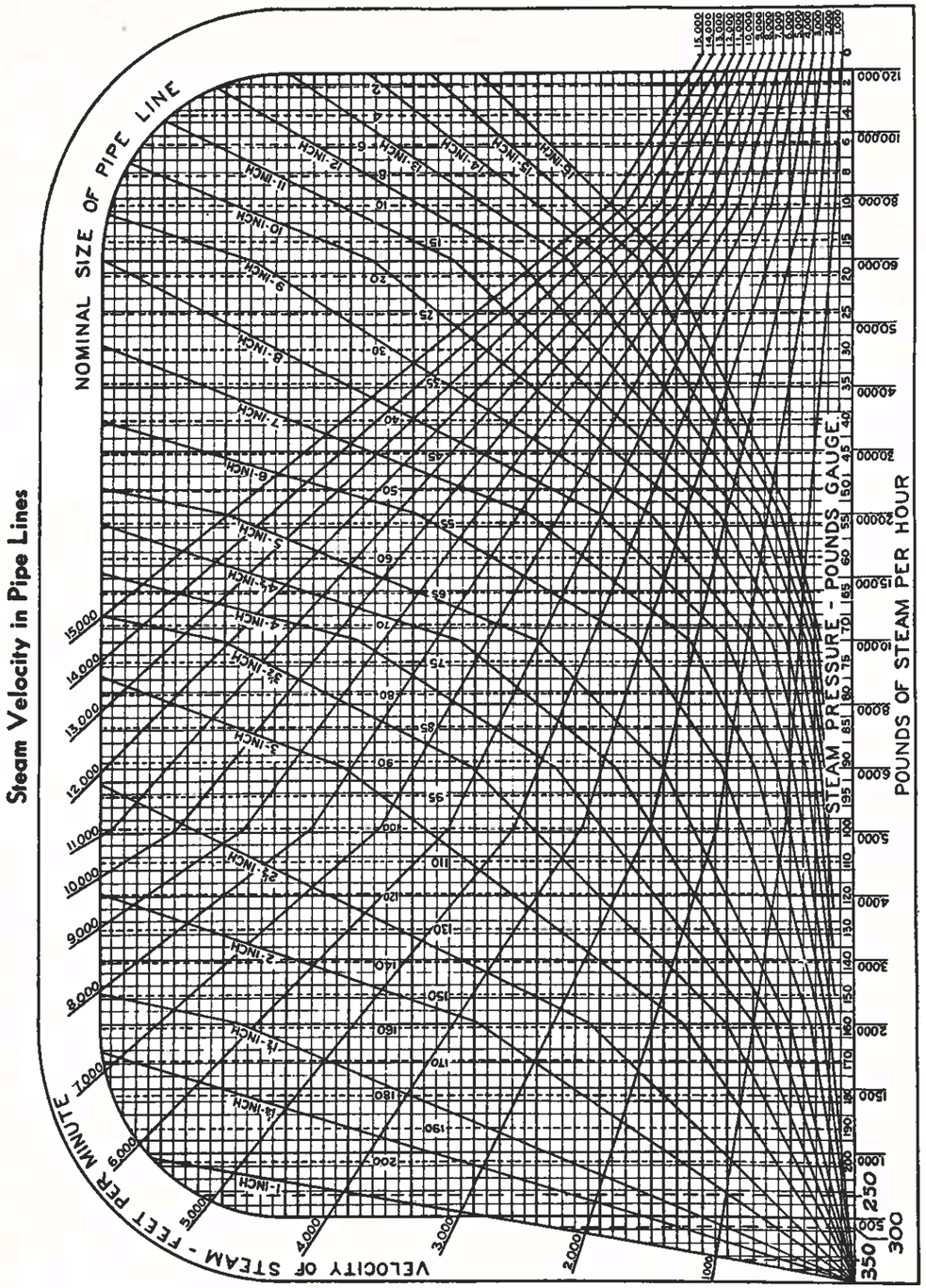


FORMULA.-

$$D = \sqrt{\frac{3.105 \times w \times v}{v \times p \times 949}}$$

D = DIAMETER OF PIPE
w = POUNDS OF STEAM PER HOUR
P = ABSOLUTE PRESSURE
V = VELOCITY

From Standard Authorities



This chart is a great time-saver in calculating velocities, discharge and size of pipe required for given condition of flow.

EXAMPLE: (1) Allowing a velocity of 5,000 feet per minute, what size of pipe is necessary to deliver 8,000 pounds of steam per hour at 120 pounds gauge?

SOLUTION: Trace 5,000 foot velocity line to 120 pounds gauge. From intersection follow horizontally to 8,000 pounds of steam per hour. Read nearest size of pipe, viz., 4 inches.

EXAMPLE: (2) Find velocity of steam in a 6-inch pipe delivering 20,000 pounds of steam per hour at 85 pounds gauge?

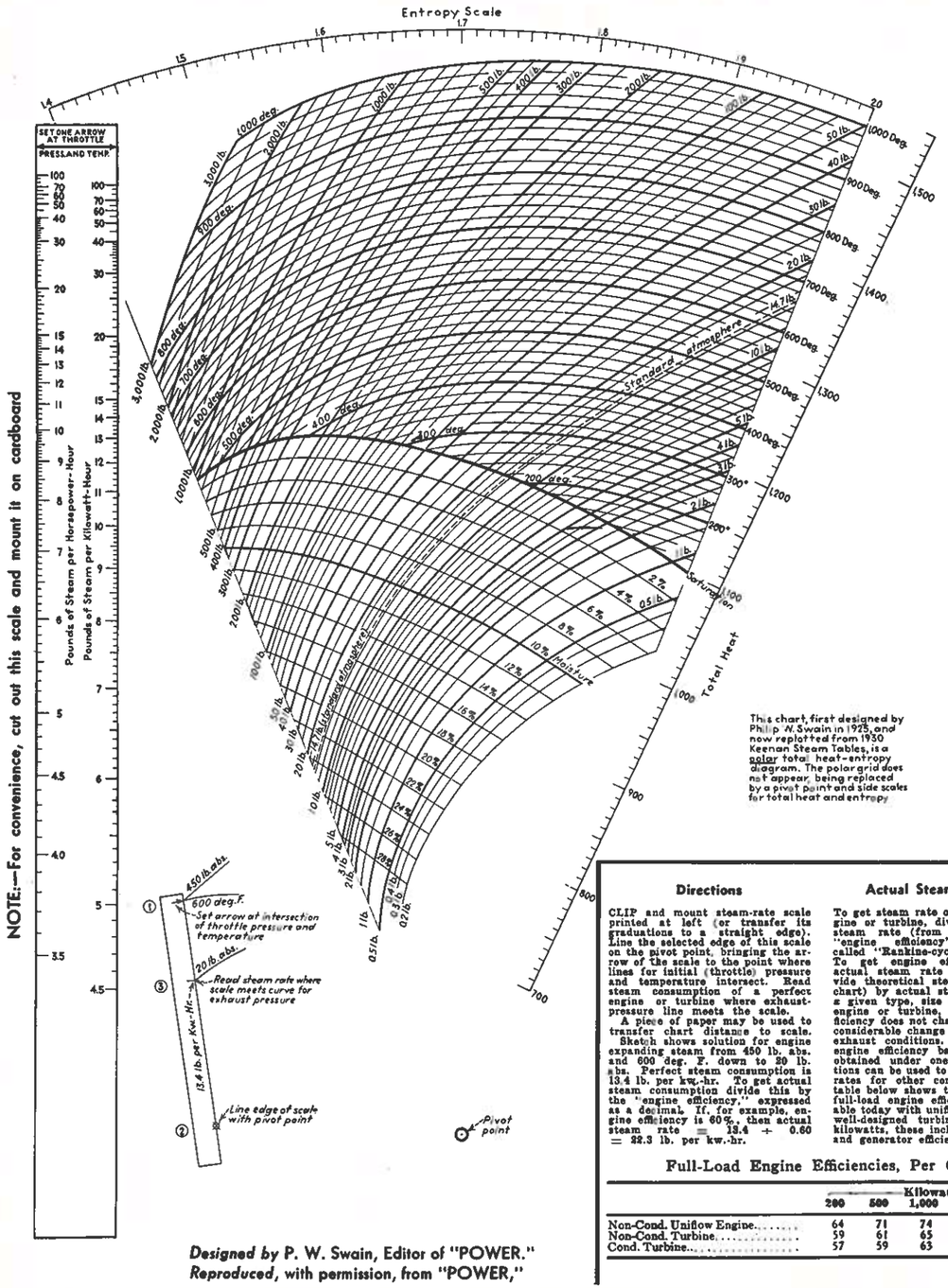
SOLUTION: Trace the 6,000 velocity line to intersect 100 pounds pressure line. Follow horizontally to 8-inch pipe line and read at that point 32,300 pounds of steam per hour.

EXAMPLE: (3) Allowing a velocity of 6,000 feet per minute through an 8-inch pipe, find the pounds of steam per hour at 100 pounds gauge?

SOLUTION: Trace the line representing 20,000 pounds per hour to intersect 6-inch pipe. Follow horizontally to 8-inch pipe line and read at that point 32,300 pounds of steam per hour.

From Standard Authorities

Steam rate chart



This chart, first designed by Philip M. Swain in 1925, and now replotted from 1930 Keenan Steam Tables, is a polar total heat-entropy diagram. The polar grid does not appear, being replaced by a pivot point and side scales for total heat and entropy

Directions

CLIP and mount steam-rate scale printed at left (or transfer its graduations to a straight edge). Line the selected edge of this scale on the pivot point, bringing the arrow of the scale to the point where lines for initial (throttle) pressure and temperature intersect. Read steam consumption of a perfect engine or turbine where exhaust-pressure line meets the scale.

A piece of paper may be used to transfer chart distance to scale.

Sketch shows solution for engine expanding steam from 450 lb. abs. and 600 deg. F. down to 20 lb. abs. Perfect steam consumption is 13.4 lb. per kw.-hr. To get actual steam consumption divide this by the "engine efficiency," expressed as a decimal. If, for example, engine efficiency is 60%, then actual steam rate = 13.4 ÷ 0.60 = 22.3 lb. per kw.-hr.

Actual Steam Rates

To get steam rate of an actual engine or turbine, divide theoretical steam rate (from the chart) by "engine efficiency" (sometimes called "Rankine-cycle efficiency"). To get engine efficiency where actual steam rate is known, divide theoretical steam rate (from chart) by actual steam rate. For a given type, size and loading of engine or turbine, the engine efficiency does not change much with considerable change in throttle and exhaust conditions. Therefore the engine efficiency based on results obtained under one set of conditions can be used to estimate steam rates for other conditions. The table below shows the approximate full-load engine efficiencies obtainable today with uniflow engines and well-designed turbines. Based on kilowatts, these include mechanical and generator efficiencies.

Full-Load Engine Efficiencies, Per Cent

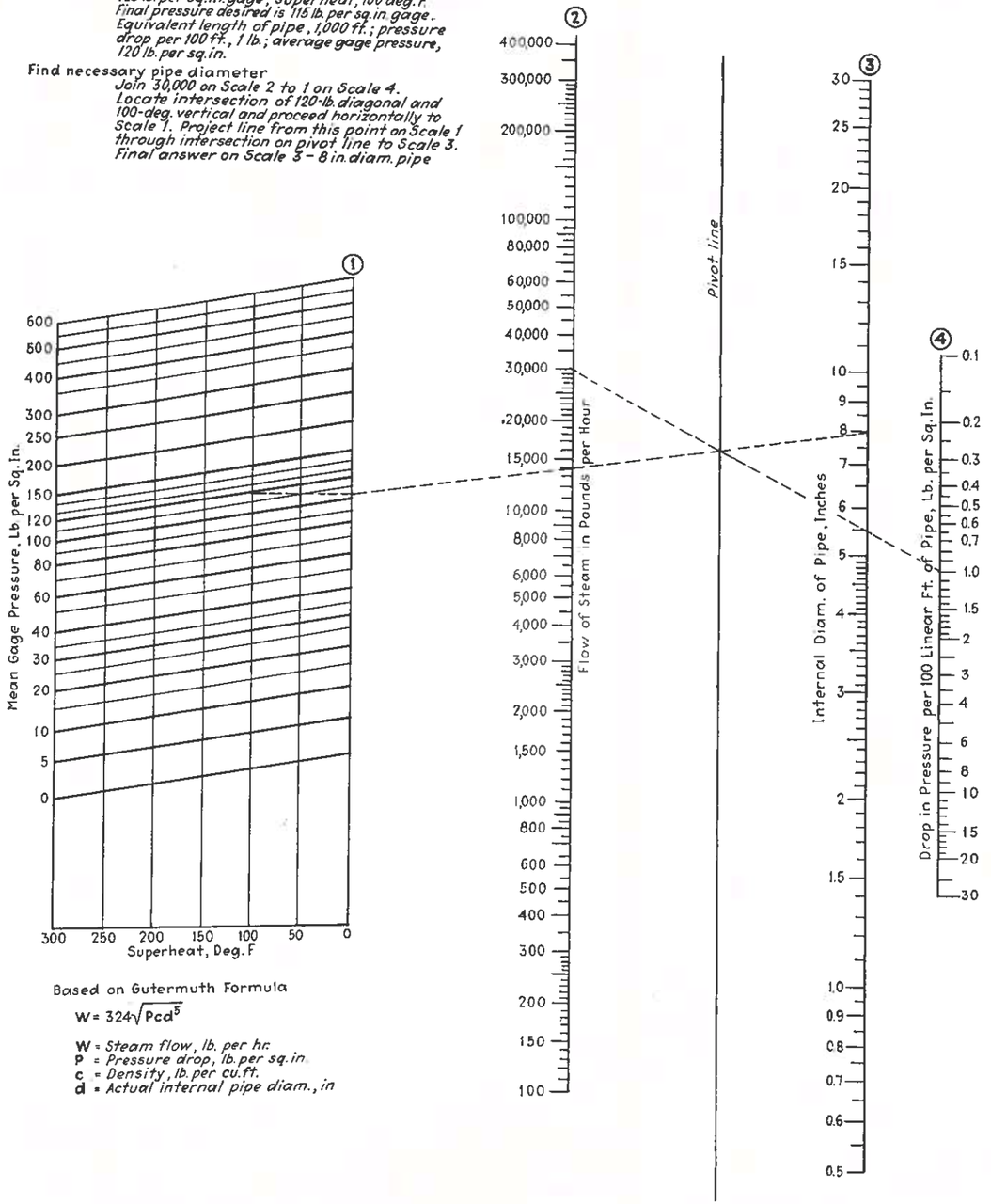
	Kilowatts				
	200	500	1,000	2,000	5,000
Non-Cond. Uniflow Engine	64	71	74	...	...
Non-Cond. Turbine	59	61	65	70	75
Cond. Turbine	57	59	63	68	73

Designed by P. W. Swain, Editor of "POWER."
Reproduced, with permission, from "POWER,"

Pressure drop in steam piping

Example: *Steam flow, 30,000 lb. per hr.; initial pressure 125 lb. per sq. in. gage; superheat, 100 deg. F. Final pressure desired is 115 lb. per sq. in. gage. Equivalent length of pipe, 1,000 ft.; pressure drop per 100 ft., 1 lb.; average gage pressure, 120 lb. per sq. in.*

Find necessary pipe diameter
Join 30,000 on Scale 2 to 1 on Scale 4. Locate intersection of 120-lb. diagonal and 100-deg. vertical and proceed horizontally to Scale 1. Project line from this point on Scale 1 through intersection on pivot line to Scale 3. Final answer on Scale 3 – 8 in. diam. pipe



Based on Gutermuth Formula

$$W = 324\sqrt{Pcd^5}$$

W = *Steam flow, lb. per hr.*
P = *Pressure drop, lb. per sq. in.*
c = *Density, lb. per cu. ft.*
d = *Actual internal pipe diam., in.*

Designed by M. E. Cowan, Industrial Engineer.
Reproduced, with permission, from "POWER."

Serving Steam Users For More Than Half a Century.

WRIGHT AUSTIN
DETROIT, MICHIGAN

MANUFACTURERS OF THE FOLLOWING PRODUCTS:

- Steam Separators
- Oil Separators
- Gas Separators
- Air Separators
- Exhaust Heads
- Welded Construction Unfired Pressure Vessels
- Steam Traps
- Grease Traps
- Gasoline Traps
- Compressed Air Traps
- Air Relief Traps
- Air Vents
- Strainers
- Alarm Water Columns
- Try-Cocks
- Water Gauges
- Safety Protector for Gauge Glasses
- Gauge Glass Illuminators
- Automatic Feed Water Regulators
- Controls

Use Code Words—Cut the Cost of Your Telegrams

Representatives and Distributors in Principal Cities

(See Back Cover)

WRIGHT-AUSTIN COMPANY

Main Office and Plant

Detroit, Mich.

CABLE ADDRESS, RITEAUSTIN, DETROIT, (WESTERN UNION CODE)

TELEGRAPHIC CODE WORDS

To Factory—Inquiries and Orders

Pricer —What is lowest price and earliest shipment?
Sooner —How soon can you ship?
Router —Ship by cheapest route
Freighter —Ship by freight
Trucker —Ship by motor truck
Boater —Ship by boat
Expressor —Ship by express
Poster —Ship by parcel post insured
Flight —Ship by airplane
Advisor —Advise by letter if you can ship as directed
Director —If you cannot ship as directed, how soon and in what manner can you make shipment?
Instructor —Await our instructions before making shipment
Follower —Shipping instructions to follow
Tracer —Put tracer after shipment
Action —Answer immediately by telegraph
Airway —Answer by return air mail

From Factory—Quotations and Shipments

Concrete —Price net each to you FOB Detroit, Mich.
Stocker —Can ship at once from stock
Onefold —Can ship within one week
Twofold —Can ship within two weeks
Threefold —Can ship within three weeks
Fourfold —Can ship within four weeks
Fivefold —Can ship within five weeks
Sixfold —Can ship within six weeks
Sevenfold —Can ship within seven weeks
Eightfold —Can ship within eight weeks
Tenfold —Can ship within ten weeks
Folder —Can ship within _____ weeks
Traffic —Freight rate per hundred pounds quoted us from Detroit to destination city.
Informer —Need further information about _____
Holding —Holding order _____ for shipping instructions.
Retel —Replying to your telegram of
Relet —Replying to your letter of

CODE WORDS FOR PRESSURE

Pond	1 lb.	Plane	150 lbs.
Punt	3 lbs.	Pivot	175 lbs.
Polka	5 lbs.	Prime	200 lbs.
Point	10 lbs.	Power	225 lbs.
Podge	15 lbs.	Punch	250 lbs.
Posey	20 lbs.	Plimp	275 lbs.
Pinch	25 lbs.	Plots	300 lbs.
Posse	30 lbs.	Phram	350 lbs.
Pouch	40 lbs.	Phlit	400 lbs.
Poorl	50 lbs.	Phads	450 lbs.
Port	60 lbs.	Photo	500 lbs.
Porch	75 lbs.	Phirn	600 lbs.
Plumb	100 lbs.	Potent	650 lbs.
Pence	110 lbs.	Phist	700 lbs.
Poker	125 lbs.		

WAUGE—With Water Gauge
NAUGE—Without Water Gauge

INDEX OF TELEGRAPHIC CODE WORDS IN THIS CATALOG

Code your telegrams and cut the cost

LOOK FOR THIS MARK — **On The Steam Specialties You Buy**